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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TINKLER, MURIEL S	

ART UNIT	PAPER NUMBER
3691	

NOTIFICATION DATE	DELIVERY MODE
06/24/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPatentMail@ropesgray.com
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Office Action Summary	Application No.	Applicant(s)	
	09/736,070	CRANE, GEORGE C.	
	Examiner	Art Unit	
	MURIEL TINKLER	3691	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 May 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,6-14,21,22,27-30,35,37,40-43,48,52,56 and 60-73* is/are pending in the application.

4a) Of the above claim(s) *60-73* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,3,6-14,21,22,27-30,35,37,40-43,48,52 and 56* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to Applicant's response filed May 6, 2011. The amendments have been entered and Applicant's arguments have been fully considered. Claims 1-14, 17-23, 25-30, 33-43, 46-49, 52, 53, 56, 57 and 60-73 were previously pending. Claims 60-73 were previously withdrawn from consideration. No claims have been added. Claims 2, 4, 5, 17-20, 23, 25, 26, 33, 34, 38, 39, 46, 47, 49, 53 and 57 have been cancelled. Therefore, claims 1, 3, 6-14, 21, 22, 37-30, 35-37, 40-43, 48, 52 and 56 have been examined. The rejections are as stated below.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 6, 2011 has been entered.

Response to Arguments

2. Applicant's arguments filed May 6, 2011 have been fully considered but they are not persuasive. The Applicant has extensively amended the independent claims to remove Brownian motion language and focus instead on the relationship between a first duration and a second duration (ratio). However, this language was previously found in

several dependent claims (including claims 8 and 9), which have previously been rejected.

3. The Examiner also points out that the 35 USC 101 Rejection was previously withdrawn over claim 1, 3 and 12-14. This was an error. Therefore, the Examiner has reinstated the, 35 USC 101 Rejection over claims 1, 3 and 12-14. More specifically, independent claim 6 contains language ("computing") that infers a computing device or other hardware component (i.e. processor) is being used to perform the steps. Therefore, dependent claim 6 and other dependent claims that depend from claim 6 are not rejected using 35 USC 101.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1, 3 and 12-14 are rejected under 35 U.S.C. 101 because based upon consideration of all of the relevant factors with respect to the claim as a whole, claim(s) 1 is held to claim an abstract idea, and is/are therefore rejected as ineligible subject matter under 35 U.S.C. 101. The rationale for this finding is explained below: Claim 1 does not contain any hardware in the body of the claims. Therefore, claim 1 can be interpreted as a purely software based claim. Purely software based claims are not patentable subject matter.

6. Dependent claim(s) 3 and 12-14 when analyzed as a whole are held to be patent ineligible under 35 U.S.C. 101 because the additional recited limitation(s) fail(s) to establish that the claim(s) is/are not directed to an abstract idea, as detailed below: claims 3 and 12-14 do not cure the deficiencies of claim 1 and are therefore also rejected.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1, 3, 6-14, 21, 22, 27-30, 35-37, 40-43, 48, 52 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art, in view of Pilipovic, U.S. Patent No. 6,456,982.

Regarding claims 1, 3, 6-14, 35-37, 40-43 and 48: According to Applicant's specification, the concept of Brownian motion provides a formula which describes the movement of a particle which is moving erratically or haphazardly. According to the description, a particle which takes time Δt to move about a radius r, can be expected to take $4\Delta t$ to cover the radius 2r. Based on this description, one can determine if a particle is following Brownian motion by taking the movement of a particle (r_1) during a first time (Δt), taking a second movement of a particle (r_2) during a second time ($4\Delta t$), and seeing if $2*r_1 = r_2$, as prescribed by the disclosed Brownian motion formula. The exercise is a direct application of the formula. Of course, in the event $2*r_1 = r_2$, as prescribed, it would be obvious to conclude that the particle follows Brownian motion, and the movements are erratic or haphazard.

Therefore, Applicant's admitted prior art teaches beginning at a first initial moment, acquiring data during a first duration, and determining a first range of said data during said first duration; comparing said first range of data during the first initial range to data expected based on Brownian motion during said initial first duration; and when said first range of said data during said initial first duration equals said range of said data expected, based on Brownian motion, during said initial first duration, concluding that the system is varying erratically. Examiner notes that as disclosed in the Applicant's equations above, a first and a second range are compared above by using ratios.

Applicant fails to teach the data representing price in a financial system.

Pilipovic teaches financial price data is typically considered to follow Brownian motion (column 2, lines 16-29), and using simulations to predict future prices (column 2 lines 10-15). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the teachings of Applicant to include applying the known concepts of Brownian motion (now ration analysis) to financial prices, because Pilipovic teaches this very application. The Examiner points out that Brownian motion is currently stated in the rejection, despite being edited out in the amendments, dated May 6, 2011, because the definition of Brownian motion as disclosed in the specification (see paragraph 8):

> "[0008] The invention is based on the proposition that if there are no undue outside influences on a financial market, and there is no collusion within the market, prices can be expected to be haphazardly pushed about so as to oscillate around a mean in a manner predicted by Brownian motion. A particle subject to Brownian motion is pushed around by the random motions of neighboring particles, and takes time At to move throughout a circular two-dimensional area of radius r, and can be expected to take 4At to cover the circular area of radius 2r (including the original area of radius r) because that area is four times the original area (an r-squared relationship)..."

Regarding claims 21, 22, 27-30 and 52: In addition to the teachings as detailed above, Pilipovic teaches an apparatus comprising a means for acquiring the data during different time periods, means for comparing the data with calculated values, and means for concluding something about the system (column 7, lines 50-62, column 10 lines 35-59, and claim 41).

Regarding claims 35-37, 40-43, 48 and 56: The claims are rejected for substantially the same reasons as claims 21, 22, 27-30 and 52 above. Examiner further notes that since the claim language recites “a data feed” and, “a processor”. Pilipovic discloses the use of a processor (see fig. 5, element 3) and means for outputting processed data (fig. 5, element 17).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MURIEL TINKLER whose telephone number is (571)272-7976. The examiner can normally be reached on Monday through Friday from 8 AM until 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Alexander Kalinowski can be reached on (571)272-6771. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Muriel Tinkler/
Examiner, Art Unit 3691